

Advanced Metering Infrastructure:
What Happened to Demand Response?



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Advanced Metering Infrastructure: What Happened to Demand Response?



SYSTEM COSTS

- System costs ignored or minimized
 - Short meter life
 - Potential for obsolescence of technology
 - Stranded meter and CIS costs
- Communications technologies
 - Requirement for two-way communication

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PARADOX OF METERS AND NETWORKS

- Low users, with better than average load profile, can't afford (not cost-effective)
- High users, with worse than average load profile, don't want

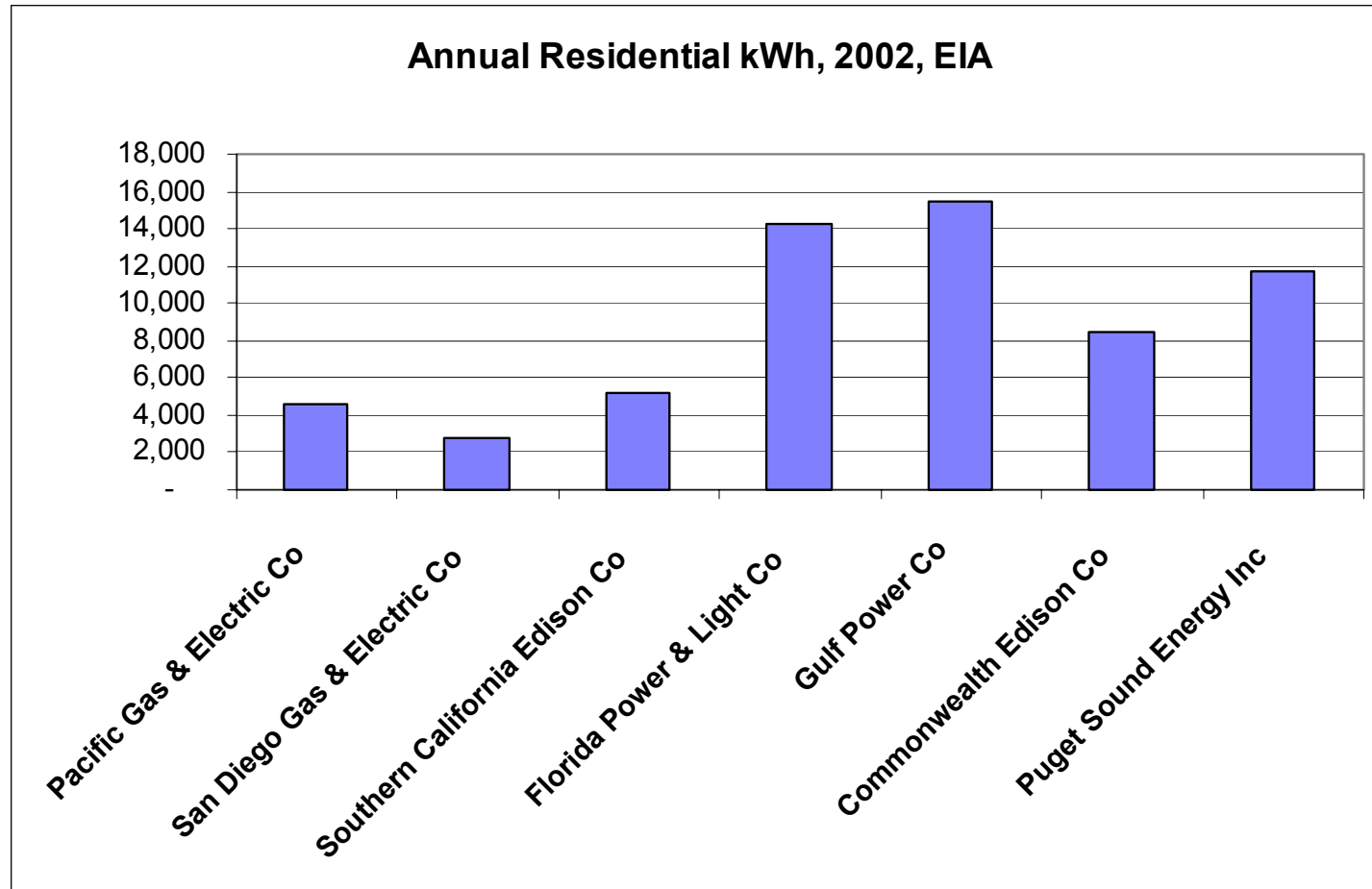
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SYSTEM BENEFITS?

- Benefits of kWh avoided?
 - Price spikes only on unhedged load
 - Price spikes as in energy crisis less likely, given forward contracts and capacity requirements
 - Persistence of savings?
- What is the purpose for this infrastructure? Is it DR or something else?

Case Studies: Low California Consumption



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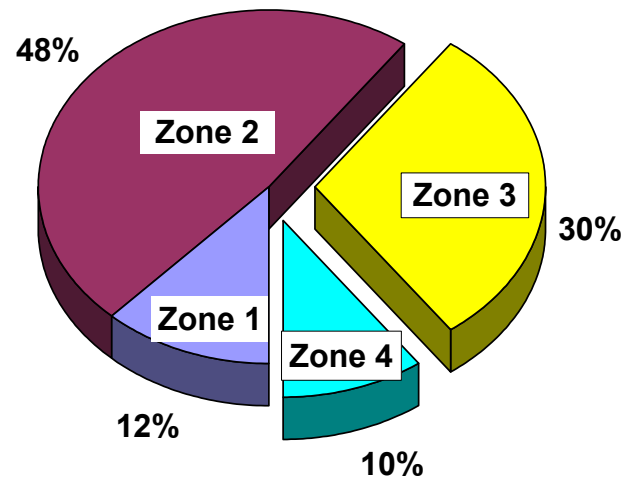
RESULTS FROM SPP

- Energy savings LOWER than predicted low range
- Prior announcement of 2,000 MW potential is incorrect
- Customers stayed on SPP with \$175 incentive
- Average only \$1-2 saved per month
- More savings in Zones 3 & 4, high users

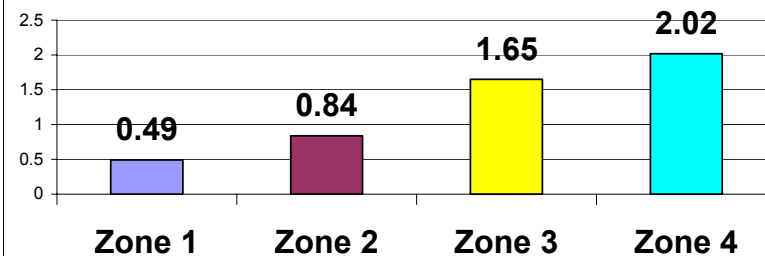
60% of Customers Below Av. Peak



Percent Res. Customers



Per Cust. Peak kWh/hour



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RESULTS FROM SPP

- Need 2004 Analysis
 - Persistence over several days
 - TOU Results
 - Information only
 - Self-selection bias
 - Small C&I

Policy Issues



'No, no!' said the Queen.

'Sentence first--verdict afterwards.'

Lewis Carroll, *Alice in Wonderland*

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POLICY ISSUES – **Why are we Doing This?**

- Demand Response?
 - If goal is DR and reduction of A/C load, can utilize cheaper old Direct Load Control Technologies
- Other system benefits? What is the vision for these systems?
- Why pursuing residential customer class?
 - \$45 million spent on infrastructure for >200 kW customers
 - Getting 25MW of price responsive DR
 - Shouldn't we pursue pilots for large customers before spending billions on residential infrastructure?

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POLICY ISSUES – **Disaster Waiting to Happen**

- High costs for meters, networks, and CIS systems
- Stranded old technology; fast obsolescence?
- Reliability of technology and suppliers?
- Demand response only for a few days per year
- Customers will be unhappy with small bill savings or higher bills
- Are the alleged benefits worth several BILLION DOLLARS?

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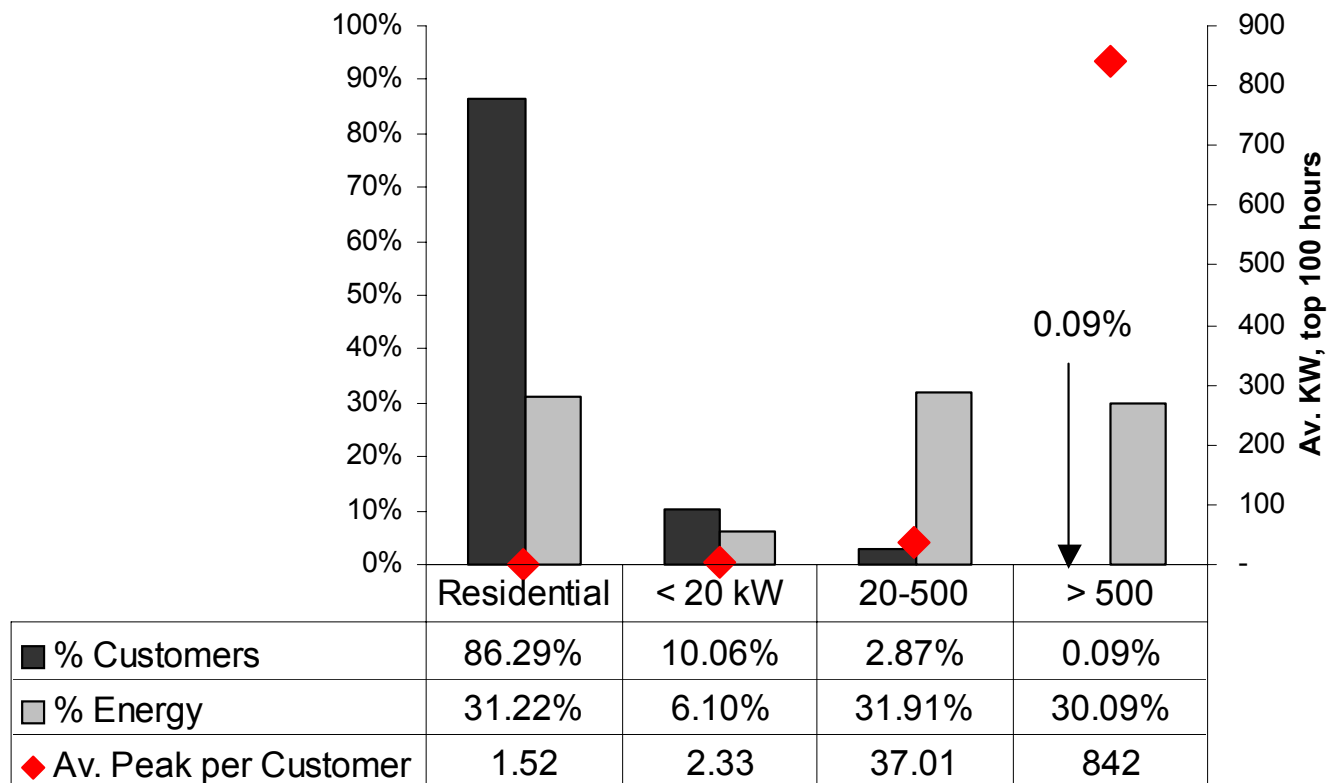
POLICY ISSUES –**Rate Design**

- Benefits of existing rate design
 - Protects low users from the crisis costs
 - Promotes conservation
 - Generally understood– use more, pay more
- Rate Design changes happen at the PUC
- SPP rates work against conservation

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Southern California Edison



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RECOMMENDATIONS

- Wait for reliable data analyses
 - SPP for 2003 and 2004
 - Do large scale pilot for customers over 200 kW who all have metering and communications infrastructure
- Clarify goals and CE of infrastructure deployment
- Implement for large customers before residential